UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/659,011	09/10/2003	Paul I. Szabo	8204/1200311US3	3494

38878 7590 05/27/2009

F5 Networks, Inc.
c/o DARBY & DARBY P.C.
P.O. BOX 770
Church Street Station
NEW YORK, NY 10008-0770

EXAMINER	
LOUIS, VINNCELAS	
ART UNIT	PAPER NUMBER
2416	

MAIL DATE	DELIVERY MODE
05/27/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/659,011	SZABO ET AL.	
	Examiner	Art Unit	
	VINNCELAS LOUIS	2416	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 April 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22,26-42,47,48 and 52-59* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22,26-42,47,48 and 52-59* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 April 2009* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *Seee attached IDS*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 04/23/2009 have been fully considered but they are not persuasive.

Regarding claim 1, the applicant alleged that Albert '045 does not teach or merely suggest "selecting another traffic manager" as recited on page 14 of 18.

In response, the examiner respectfully disagrees because in this case, Albert '045 explicitly teaches the above limitation. Albert '045 discloses a network architecture that includes first forwarding agent 1 231 and second forward agent 232 where they both act as a distributor. It also includes first service manger 1 241 and second service manager 2 242, where they both act as traffic manager. In the network, each of the forwarding agent as distributor is in communication with both of the service manager as traffic manager (**see fig.2).** Such architecture is designed to provide load balancing (**see col.8, lines 45-67).** When a service manager provides load balancing through a set of forwarding agents, the service manager uses fixed affinities to provide instructions to the forwarding agents detailing where packets for each load balanced flow are to be forwarded **(see col.8, lines 10-17)**. The service manager also provides general instructions to each forwarding agent that specify which new flows the service manager is interested in seeing.

These general instructions are provided using wildcard affinities. Wildcard affinities, which are described in detail below, specify sets of flows that are of interest to a service manager (**see col.8, lines 18-24).** The use of wildcard affinities enables separate service managers as traffic mangers to be configured to provide services for different sets of flows. Each service manager specifies the flows of interest to it and other service managers handle other flows (**see col.8, 28**-34).

Once the forwarding agents as distributor have received fixed affinities, packets intercepted that match a fixed affinity are processed as instructed in the set of actions specified in the fixed affinity. If a matching fixed affinity is not found, the packet is compared against the wildcard affinities to find service manager(s) as traffic manager (s) that are interested in this type of packet (**see col.15, lines 45-67**).

As described above, forwarding agents determine a service manager to handle a packet based on flow identifiers that specify source and destination IP addresses and ports. The fragment service manager sends wildcard affinities to the forwarding agents with a special fragment indicator set. When the forwarding agents receive packet fragments, the forwarding agents search for wildcard affinities with the fragment indicator set. Thus, forwarding agents look for wildcard affinities that correspond to complete packets when complete packets are

received and forwarding agents search for wildcard affinities that correspond to packet fragments when packet fragments are received. Wildcard affinities for packet fragments may specify only source and destination IP addresses and not source and destination ports since all packet fragments do not include ports **(see col.28, lines 19-67).**

Last not least, Operational status of service managers may be communicated on the service manager interface and a master service manager may send configuration information about flows being supported through backup service managers so that the backup service managers can function in place of the master service manager should it fail (**see col.10, lines 45-51**).

Regarding claims 12, 17 and 36, the same argument as shown above is applied since they include similar features as claim 1 as recited on page 15 of 18.

Thus, it is clear that Albert '045 discloses selecting another traffic manager as service manger.

In view of the above, it is clear the previously cited prior art (s) still disclose the applicant broadly claim invention as set detailed in the rejection below.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-11, 12-16, 17-22, 26-31, 32, 33-35, 36-42, 47-48 and 52-59 are rejected under 35 U.S.C. 102(e) as being anticipated by Albert et al (US 6,742,045).

Regarding claim 1, Albert '045 discloses an apparatus for routing at least one flow of packets over a network (see fig.2A) comprising:

(a) a transceiver (**see fig.2A-2B, which shows forward agent 250 with network interface as transceiver**) arranged to receive and forward each packet in a flow of packets (**se col.9, lines 15-60, which discusses forward agent 250 that includes interface 258 that allows packets to be sent and received & see col.7, lines 18-19, which discusses flow as set of packets sent between two end stations**); and

(b) a processor (**see fig.2A-2B, which shows processor 252)**, coupled to the transceiver (**see fig.2A-2B, which shows processor 252 couple to interface 258**

as transceiver), that is arranged to perform actions (**see fig.3A, Which shows 302 to perform action by receiving SYN ,see col.12, lines 30-40 & see col.19, lines 65-67),** including:

(i) if at least one received packet in the flow of packets is associated with a traffic manager (**see col.11, lines 22-35, which discusses forward 302 determines the destination matches of the SYN packets matches by service manager 300 as traffic manager),** forwarding the flow of packets to the associated traffic manager (**see col.11, lines 22-35, which discusses forward agent 302 forwards the SYN packets to service manager 300, see col.19, lines 65-67**); and

(ii) if each received packet in the flow of packets is unassociated with the traffic manager, performing actions (**see col.15, lines 45-49, which discusses packets received by the forward agent with no service manager as traffic manager found/matched, the packets is compared to find service manager as traffic managers that are interested in this type of packets & see col.16, lines 7-26);**

(A) selecting another traffic manager (**see col.15, lines 45-65, which discusses find/selects service manager as traffic manager that matches the packets, see col.32, lines 14-23, which discusses when packet are received by forwarding agents that do not include complete identifiers, the packet**

fragments are sent to a fragment service manager that forwards them to the appropriate service managers); and

(B) associating the other traffic manager with the flow of packets (**see col.15, lines 45-65, which discusses a service manager uses the wildcard affinity to be informed of flows it may be interested)** wherein each received packet in the flow of packets is forwarded to the other traffic manager (**col.15, lines 45-65, which discusses service manager still to receive packets, see col.23, lines 10-67, see col.25, lines 12-25& see fig.2A, fig.4).**

Regarding claim 2, Albert '045 discloses further comprising a memory (**see fig.2A-2b, which shows memory 245)** that is configured to store a connection key (**see col.29, lines 58-67 & col.30, lines 25-30, which discusses memory 1316 for the purpose of storing packets fragments from which the processor reads IP identifier as key identifier**) associated with at least one received packet in the flow of packets (**se col.11, lines 22-67, which discusses forwarding agent 302 determines the destination address associates with the service manager as traffic manager & col.30, lines 25-30**).

Regarding claim 3, Albert '045 discloses wherein the processor is arranged to perform actions (**see fig.3A, Which shows 302 to perform action by receiving SYN, see col.12, lines 30-40 & see col.19, lines 65-67)**, further comprising, if at

least one received packet in the flow of packets includes at least one connection key associated with at least one traffic manager (**see col.11, lines 22-35, which discusses forward 302 determines the destination matches of the SYN packets matches by service manager 300 as traffic manager)**, storing each connection key (**i.e. key identifier as IP address)** and its association with each traffic manager (**see col.29, lines 58-67 & col.30, lines 25-30, which discusses memory 1316 for the purpose of storing packets fragments from which the processor reads IP identifier of the service manager & see fig.2A**).

Regarding claim 4, Albert '045 discloses wherein the connection key further comprises at least one of a destination IP address (**see fig.7 & see col.17, lines 1-67, which discusses destination IP address & see fig.15).**

Regarding claim 5, Albert '045 discloses, wherein the processor is arranged to perform actions (**see fig.3A, Which shows 302 to perform action by receiving SYN, see col.12, lines 30-40 & see col.19, lines 65-67)**, further comprising:
(a) receiving a signal from the traffic manager (**col.26, lines 14-67, which discusses service manager as traffic manager forwards affinity to a forwarding agent & see col.16, lines 5-20)**; and

(b) if the signal indicates a memorize instruction, storing the connection key and an association with the other traffic manager (**col.30, lines 25-30, which**

discusses memory 1316 for the purpose of storing packets fragments from which the processor reads IP identifier of the service managers traffic managers & see col.26, lines 14-67, which discusses service includes a criteria in a fixed affinity that specify future packets for the flow, which have already been assigned connection key, should not be sent to the service manager).

Regarding claim 6, Albert '045 discloses wherein the processor is arranged to perform actions (**see fig.3A, Which shows 302 to perform action by receiving SYN, see col.12, lines 30-40 & see col.19, lines 65-67)**, further comprising:

(a) receiving a signal from the traffic manager (**col.26, lines 14-67, which discusses service manager as traffic manager forwards affinity to a forwarding agent & see col.16, lines 5-20)**; and

(b) if the signal indicates a forget instruction, deleting the association between the connection key (**i.e. IP address as connection key**) and the other traffic manager (**see col.27, lines 9-41, which discusses the service manager asks the forwarding agents to delete the affinities that are associated with themselves**).

Regarding claim 7, Albert '045 discloses wherein the processor is arranged to perform actions (**see fig.3A, Which shows 302 to perform action by receiving SYN, see col.12, lines 30-40 & see col.19, lines 65-67)**, further comprising, aging

at least one connection key (**see col.27, which discusses forwarding agents removes affinities at intervals specify by the service manager as traffic manager via an affinity updated message with a time to live of zero & see col.16, lines 6-20)**.

Regarding claim 8, Albert '045 discloses further comprising associating the other traffic manager with the connection key (**see fig.14, which shows the uses of look up affinity 1414 to determine the connection of service manager as traffic**), and mirroring the connection key to another processor (**see fig.14, which shows if determine remote service manager as traffic, copy/mirror the IP address and port)**.

Regarding claim 9, Albert '045 discloses, wherein the processor includes at least one of a microprocessor (**see col.30, lines 1-30, which discusses processor 1310 to represent any processor arrangement including multiple processors or a single processor performing multiple tasks)**.

Regarding claim 10, Albert '045 discloses wherein the apparatus is arranged to operate as at least one of a router (**see col.8, lines 59-67, which discusses forwarding agent on a router).**

Regarding claim 11, Albert '045 discloses wherein each received packet includes at least one of an internet protocol (IP) address (**see col.7, lines 17-25, see col.11, lines 22-35, which discusses destination IP address**).

Regarding claim 12, Albert '045 discloses a method for routing at least one flow of packets over a network (**see fig.2A & se abs, which discusses method**) comprising:

(a) if at least one received packet in the flow of packets is associated with a traffic manager (**see col.11, lines 22-35, which discusses forward 302 determines the destination matches of the SYN packets matches by service manager 300 as traffic manager)**, forwarding the flow of packets to the associated traffic manager (**see col.11, lines 22-35, which discusses forward agent 302 forwards the SYN packets to service manager 300, see col.19, lines 65-67 & & see col.7, lines 18-19, which discusses flow as set of packets sent between two end stations**); and

(b) if each received packet in the flow of packets is unassociated with the traffic manager, performing further actions (**see col.15, lines 45-49, which discusses packets received by the forward agent with no service manager as traffic manager found/matched, the packets is compared to find service**

manager as traffic managers that are interested in this type of packets & see col.16, lines 7-26), including:

(i) selecting another traffic manager (**see col.15, lines 45-65, which discusses find/selects service manager as traffic manager that matches the packets)**; and

(ii) associating the other traffic manager with the flow of packets (**see col.15, lines 45-65, which discusses a service manager uses the wildcard affinity to be informed of flows it may be interested)**, wherein each received packet in the flow of packets is forwarded to the other traffic manager (**col.15, lines 45-65, which discusses service still to receive packets, see col.23, lines 10-67, see col.25, lines 12-25& see fig.2A, 4).**

Regarding claim 13, Albert '045 discloses further comprising sending a second signal to a second distributor (**i.e. fixed affinity 1 is sent to forwarding 502 by service manager 504)**, in response to detecting a communication protocol signal in packet seen by a first distributor (i.e**. forwarding agent 512 received SYN ACK from host 506**), wherein the second signal instructs the second distributor to age a second association between a second flow of packets and the traffic manager (**see fig.5,which shows forwarding agent 512 to send the SYN ACK to 500 based on fixed affinity 2 received in response to the first affinity**

from service manager 504 instead of forwarding aging 502, col.14, lines 1-67 & see col.15, lines 1-67).

Regarding claim 14, Albert '045 discloses further comprising, in response to detecting a TCP FIN signal (**i.e. a via an affinity message with a time to live of zero)**, aging the association between the flow of packets and the traffic manager (**see col.27, lines 8-67, a time to live sent by service manager as traffic manager to forwarding agent that computes the time to live and store the expiration time**).

Regarding claim 15, Albert '045 discloses wherein associating the other traffic manager (**i.e. service manager as traffic manager**) with the flow of packets further comprises storing a connection key (**i.e. IP address**) and an identifier associated with the other traffic manager (**col.30, lines 25-30, which discusses memory 1316 for the purpose of storing packets fragments from which the processor reads IP identifier of the service managers traffic managers & see col.26, lines 14-67, which discusses service includes a criteria in a fixed affinity that specify future packets for the flow, which have already been assigned connection key, should not be sent to the service manager)**.

Regarding claim 16, Albert '045 discloses wherein associating the other traffic manager with the flow of packets further comprises:

(a) receiving the flow of packets from the other traffic manager (**col.26, lines 14-67, which discusses service manager as traffic manager forwards affinity to a forwarding agent & see col.16, lines 5-20)**;

(b) determining whether a signal is associated with the received flow of packets (**see col.15, lines 45-67, which discusses forwarding agents have received fixed affinities that are associated with flow of packets and determine a determine match fixed affinity**); and

(c) if the signal indicates a memorize action, storing a connection key and an identifier associated with the other traffic manager (**col.30, lines 25-30, which discusses memory 1316 for the purpose of storing packets fragments from which the processor reads IP identifier of the service managers traffic managers & see col.26, lines 14-67, which discusses service includes a criteria in a fixed affinity that specify future packets for the flow, which have already been assigned connection key, should not be sent to the service manager & see col.15, lines 45-67)**.

Regarding claim 17, Albert '045 discloses a system for routing at least one flow of packets over a network (**see fig.2A**), comprising:

(a) a plurality of servers (**see fig.2A, which shows SERVER 1 –SERVER 3 as plurality)**; and

(b) a distributor (**see fig.2A, which forwarding Agent 1 & 2 as distributor**) that is in communication with the plurality of servers (**see fig.2A, which shows forwarding Agent 1 & see col.6, lines 37-67, which discusses forwarding 231 is connected to server 221 and 222)** wherein the distributor is arranged to perform actions (**see fig.3A, Which shows 302 to perform action by receiving SYN, see col.12, lines 30-40 & see col.19, lines 65-67)**, including:

(i) if a connection key (**i.e. destination IP address of the traffic manager**) in at least one received packet in the flow of packets is associated with a traffic manager (**see col.11, lines 22-35, which discusses forward 302 determines the destination matches of the SYN packets matches by service manager 300 as traffic manager)**, forwarding the flow of packets to the traffic manager associated with the connection key (**see col.11, lines 22-35, which discusses forward agent 302 forwards the SYN packets to service manager 300, see col.19, lines 65-67**); and

(i) if the connection key (**i.e. destination IP address of the traffic manager**) in each received packet in the flow of packets is unassociated with the traffic manager, performing actions (**see col.15, lines 45-49, which discusses packets received by the forward agent with no service manager as traffic manager found/matched, the packets is compared to find service manager as**

traffic managers that are interested in this type of packets & see col.16, lines 7-26), including:

(A) selecting another traffic manager (**see col.15, lines 45-65, which discusses find/selects service manager as traffic manager that matches the packets)**; and

(B) associating the other traffic manager with the connection key (**see col.15, lines 45-65, which discusses a service manager uses the wildcard affinity to be informed of flows it may be interested)**, wherein each received packet in the flow of packets is forwarded to the other traffic manager (**col.15, lines 45-65, which discusses service still to receive packets, see col.23, lines 10-67, see col.25, lines 12-25& see fig.2A, 4).**

Regarding claim 18, Albert '045 discloses wherein the distributor is arranged to perform further actions, including:

(a) sending a signal to a second distributor (**i.e. fixed affinity 1 is sent to forwarding 502 by service manager 504)**, wherein the signal is indicative of the association between the flow of packets and the traffic manager (**see fig.5, which shows the fixed affinity to indicate association between SYN flow and forwarding agent 502)**; and

(b) in response to detecting a communication protocol signal in another received packet in the flow of packets (i.e**. forwarding agent 512 received SYN ACK from host 506)**, sending a second signal to the second distributor **(i.e. affinity 1 with data)**, wherein the second signal is indicative of modifying the association between the flow of packets and the traffic manager (**see fig.5,which shows forwarding agent 512 to send the SYN ACK to 500 based on fixed affinity 2 received in response to the first affinity from service manager 504 instead of forwarding aging 502, col.14, lines 1-67 & see col.15, lines 1-67, thus modifying)**.

Regarding claim 19, Albert '045 discloses wherein modifying the association further comprises at least one of aging (**i.e. a via an affinity message with a time to live of zero)** and deleting the association between the flow of packets and the traffic manager (**see col.27, lines 8-67, a time to live sent by service manager as traffic manager to forwarding agent that computes the time to live and store the expiration time and asks the forwarding agents to delete the affinity**).

Regarding claim 20, Albert '045 discloses further comprising a plurality of traffic managers arranged (**see fig.2A, which shows service manager 241 and**

242) to direct a flow of packets to at least one of the plurality of servers (**see fig.2, which shows service manager 241 & 142 to direct packets to 220).**

Regarding claim 21, Albert '045 discloses further comprising a plurality of traffic managers (**see fig.2A, which shows service manager 241 and 242)** coupled to the transceiver (**see fig.2A-2C, which interface as transceiver)**, each traffic manager (i.e. **service manager 241 and 242)** in the plurality of traffic managers (**see fig.2A, which shows service manager 241 and 242)** is configured to perform actions (**see col.6, lines 61-67**), including:

(a) receiving each packet in the forwarded flow of packets (**see fig.3A-3B, which shows the service 300 receives SYN packets from forwarding agent 302);**

(b) including a signal with each received packet (**see fig.3A-3B, which shows the service 300 receives SYN packets from forwarding agent 302 and with fixed affinities)**, wherein the signal indicates at least one of a memorize instruction (**see col.16, lines 8-67, which discusses forwarding agent to be received fixed affinities and dispatch traffic directly to server as shown in fig.2A),** and a forget instruction (**see col.27, lines 8-67, which discusses a time to live is sent by the service managers as traffic managers to the forwarding agents**); and

(c) forwarding each received packet including the signal to another processor (**see fig.2A, which shows the use of forwarding packets service manager that includes processor & see col.27, lines 60-67**).

Regarding claim 22, Albert '045 discloses wherein selecting another traffic manager further comprises basing the selection in part on at least a destination IP address (**see fig.2A, col.8, lines 10-34, which discusses specifying subnet masks that determine the sets of source and destination IP address that will be forwarded to a service manager).**

Regarding claim 26, Albert '045 discloses a method for routing two related flows of packets including a first flow and a second flow, over a network having a plurality of traffic managers (**see fig.2A, 4**), comprising:

at a distributor (**see fig.2, which shows forwarding agent 1/ forwarding agent 2 as distributor**):

(a) receiving the first flow of packets in the related flows of packets (**see col.6, lines 37-67, which discusses some traffic from network 210 passes through a forwarding agent 231);**

(b)receiving the second flow of packets in the related flows of packets (**see col.6, lines 37-67, which discusses some traffic from network 210 passes through a forwarding agent 232);**

(c)forwarding the first flow of packets to a target traffic manager **(see col.4, lines 50-67, which discusses forward agents forward packets to the appropriate service manager as traffic manager, col.8, lines 10-67, which discusses service managers uses wildcard affinities to specify flows for which they may be provides service and forward agents transfers packets to the appropriate service managers)** selected from the plurality of traffic managers **(see fig.2A, which shows service manager 241 and 242)** , wherein the target traffic manager is selected based in part on a first connection key (**see col.8, lines 20-67, which discusses specifying subnet masks that determine the sets of source and destination IP addresses as connection key to a service manager & see fig.2A)** ; and

(d) forwarding the second flow of packets to the target traffic manager (**see col.4, lines 50-67, which discusses forward agents forward packets to the appropriate service manager as traffic manager, col.8, lines 10-67, which discusses service managers uses wildcard affinities to specify flows for which they may be provides service and forward agents transfers packets to the appropriate service managers)** based in part on the second connection key (**see col.8, lines 20-67, which discusses specifying subnet masks that determine the**

sets of source and destination IP addresses as connection key to a service manager & see fig.2A); and

Performing load-balancing (**i.e. in the case of load balancing**), including making a determination as to which traffic manager of the plurality of managers (**see fig.2, 4, which shows plurality of service manager as traffic managers**) to forward packets to based on a load across of traffic managers (**see col.3, lines 19-21, see col.8, lines 45-58, which discusses service managers/traffic managers send wildcard affinities, which specify destination addresses of server clusters that corresponding to virtual IP addresses that are to be load balanced by the service manager, to forwarding agents. Thus, the forwarding agents as the distributor forward new packets send to those virtual IP address to the appropriate service manager as traffic manger, see col.11, lines 36-53, see col.28, lines 26-55, which discusses forward agent as distributor determines a service manager as traffic to handle a packet).**

Regarding claim 27, Albert '045 discloses wherein the first flow of packets (**see col.6, lines 37-67, which discusses some traffic from network 210 passes through a forwarding agent 231)** and second flow of packets (**see col.6, lines 37-67, which discusses some traffic from network 210 passes through a forwarding agent 232)** further comprise a bi-directional flow of packets wherein

the first flow of packets flow in one direction (**see fig.2A -4, which shows forward 231 to forwards first flow of packets in the direction of server 1**) and the second flow of packets flow in a different direction (**see fig.2A -4, which shows forward 232 to forwards second flow of packets in the direction of server 3**).

Regarding claim 28, Albert '045 discloses wherein the first flow of packets is a control flow and the second flow of packets is a data flow (**see col.15, lines 40-44, which discusses FTP control flow and data flow)**.

Regarding claim 29, Albert '045 discloses, further comprising:

(a) storing an association between the first flow of packets (**see col.6, lines 37-67, which discusses some traffic from network 210 passes through a forwarding agent 231)** in the related flows of packets and the target traffic manager (**col.30, lines 25-30, which discusses memory 1316 for the purpose of storing packets fragments from which the processor reads IP identifier of the service managers traffic managers, see col.26, lines 14-67, see col.15, lines 45-67, see col.27, lines 46-67, which discusses a fixed affinity or wildcard affinity is referred as being stored on a forward agent, associated actions must be stored with the affinity)**; and

(b) in response to receiving the second flow of packets in the related flows of packets (**see col.6, lines 37-67, which discusses some traffic from network 210 passes through a forwarding agent 232)**, employing the association to identify the target traffic manager (**col.8, lines 10-67, which discusses service managers uses wildcard affinities to specify flows for which they may be provides service and forward agents transfers packets to the appropriate service managers)** storing an association between the second flow of packets and the target traffic manager (**col.30, lines 25-30, which discusses memory 1316 for the purpose of storing packets fragments from which the processor reads IP identifier of the service managers traffic managers, see col.27, lines 46-67, which discusses a fixed affinity or wildcard affinity is referred as being stored on a forward agent, associated actions must be stored with the affinity)**.

Regarding claim 30, Albert '045 discloses further comprising:

(a)receiving a packet in the first flow of packets from the target traffic manager (**see fig.2A, col.26, lines 14-67, which discusses service manager as traffic manager forwards affinity to a forwarding agent & see col.16, lines 5-20)**;

(b)determining whether a signal is associated with the received packet in the first flow of packets (**see col.15, lines 45-67, which discusses**

forwarding agents have received fixed affinities, from the traffic manager, that are associated with flow of packets and determine match fixed affinity); and

(c) if the signal is a memorize signal, storing the first connection key and an identifier associated with the target traffic manager (**col.30, lines 25-30, which discusses memory 1316 for the purpose of storing packets fragments from which the processor reads IP identifier of the service managers traffic managers & see col.26, lines 14-67, which discusses service includes a criteria in a fixed affinity that specify future packets for the flow, which have already been assigned connection key, should not be sent to the service manager & see col.15, lines 45-67, see col.27, lines 46-67)**.

Regarding claim 31, Albert '045 discloses further comprising:

(a) receiving a packet in the first flow of packets from the target traffic manager (**see fig.2A, col.26, lines 14-67, which discusses service manager as traffic manager forwards affinity to a forwarding agent & see col.16, lines 5-20)**; and

(b) in response to the received packet, storing the first connection key (**i.e. IP address)** and an identifier associated with the target traffic manager (**col.30, lines 25-30, which discusses memory 1316 for the purpose of storing packets**

fragments from which the processor reads IP identifier of the service managers traffic managers & see col.26, lines 14-67, which discusses service includes a criteria in a fixed affinity that specify future packets for the flow, which have already been assigned connection key, should not be sent to the service manager & see col.15, lines 45-67, see col.27, lines 46-67).

Regarding claim 30, Albert '045 discloses an apparatus for routing a flow of packets over a network (**see fig.2A**), comprising:

(a) a means for receiving and forwarding at least one packet in the flow of packets (**se col.9, lines 15-60, which discusses forward agent 250 that includes interface 258 that allows packets to be sent and received & see col.7, lines 18-19, which discusses flow as set of packets sent between two end stations**); and

(b) a means for forwarding each received packet in the flow of packets to a traffic manager (**col.8, lines 10-67, which discusses service managers uses wildcard affinities to specify flows for which they may be provides service and forward agents transfers packets to the appropriate service managers)**, wherein the forwarding means determines the traffic manager based in part on a connection key (**see col.8, lines 20-67, which discusses specifying subnet masks that determine the sets of source and destination IP addresses as connection**

key to a service manager & see fig.2A) that is associated with the flow of packets such that each forwarded packet in the flow of packets is routed to the same traffic manager (**col.8, lines 10-67, which discusses service managers uses wildcard affinities to specify flows for which they may be provides service and forward agents transfers packets to the appropriate service managers & see fig.2A)**.

Regarding claim 33, Albert '045 discloses a method for routing a flow of packets over a network (**see fig.2A**), comprising:

(a) transmitting a signal, from a traffic manager (i**.e. service manager)** to a distributor (**see fig.3A, Which shows 302 to receive wildcard affinity from service manager , see col.12, lines 30-40 & see col.19, lines 65-67)**,

wherein the signal indicates a processing instruction associated with the flow of packets (**see col.17, lines 35-67, which discusses wildcard affinities would include an IP address with a net mask, indicating the first three byte of the IP address that must match)**;

(b) receiving the signal at the distributor (**see fig.2A-3B, which shows 302 to receive fixed affinity from service manager 300)**;

(c) receiving, at the distributor, a packet in the flow of packets (**see fig.3A, which shows SYN packet is received at the forward agent as distributor);** and

(d) processing, at the distributor, the packet based at least in part on the signal (**see fig.2A-3B, which shows the SYN packet flow is forwarded to service manager 300);**

transmitting, from the traffic manager **(i.e. service manager as traffic manager)** to the distributor (**see fig.2, 4, which shows the use of transmitting from the service to forwarding agent as distributor)**, a first partial server-side connection key (**i.e. second packet as flow that includes only source and destination IP address but not ports)** corresponding to another flow of packets, wherein the first partial server-side connection key includes known fields and unknown fields (**see fig.11, which shows which shows 1102 and 1104, see col.28, lines 25-67, which discusses source and destination IP address as known fields and ports as unknown fields**);

learning, at the distributor (i.e. **forwarding agent as distributor)**, of a second partial server-side connection key which includes fields corresponding to unknown fields (**i.e. first packet as flow that includes source, destination IP address, and ports, which are unknown field to the second packet)** of the first partial server-side connection key(**see fig.11, which shows which shows 1102 and 1104, see col.28, lines 25-67, which discusses forwarding agents look for wildcard affinities that correspond to packets fragments, where wildcard**

affinities for packet fragment may specify only source and destination IP address and not source and destination ports or to specify all); and

storing, at the distributor (**i.e. at forwarding agent**), an association (**col.30, lines 25-30, which discusses memory 1316 for the purpose of storing packets fragments from which the processor reads IP identifier of the service managers traffic managers, see col.26, lines 14-67, see col.15, lines 45-67, see col.27, lines 46-67, which discusses a fixed affinity or wildcard affinity is referred as being stored on a forward agent, associated actions must be stored with the affinity)** between the second partial server-side connection key (**i.e. second packet as flow that includes only source and destination IP address but not ports)** and the traffic manager **(i.e. service manager as traffic manager)** associated with the flow of packets for use in forwarding packets of said another flow of packets(**see fig.11, see col,28, lines 26-67 & see col.29-1-30, fig.1, fig.4).**

Regarding claim 34, Albert '045 discloses wherein receiving the signal at the distributor further comprises storing a mapping between the flow of packets and the traffic manager (**col.30, lines 25-30, which discusses memory 1316 for the purpose of storing packets fragments from which the processor reads IP identifier of the service managers traffic managers, see col.27, lines 46-67,**

which discusses a fixed affinity or wildcard affinity is referred as being stored on a forward agent, associated actions must be stored with the affinity).

Regarding claim 35, Albert '045 discloses wherein processing the packet further comprises forwarding the packet to the traffic manager (**see fig.3A-3B, which shows forwarding SYN packet to the service manager 300).**

Regarding claim 36, Albert '045 discloses a method for routing a flow of packets over a network (**see fig.2A**), comprising:

(a) receiving, from a target traffic manager (**see fig.3A, Which shows 302 to receive wildcard affinity from service manager as traffic manager , see col.12, lines 30-40 & see col.19, lines 65-67)**, a signal representing a processing instruction associated with the flow of packets (**see col.17, lines 35-67, which discusses wildcard affinities would include an IP address with a net mask, indicating the first three byte of the IP address that must match & see fig.2A)**;

(b) receiving, a packet in the flow of packets (**see fig.3A, Which shows 302 to receive SYN packets in the flow of packets)**; and

(c) processing the packet based at least in part on the signal representing the processing instruction (**see fig.2A-3B, which shows the SYN packet flow is forwarded to service manager 300).**

Regarding claim 37, Albert '045 discloses further comprising, in response to receiving the signal (**i.e. wild affinity**), storing a mapping between the flow of packets and the target traffic manager (see fig.2A-3A, **col.30, lines 25-30, which discusses memory 1316 for the purpose of storing packets fragments from which the processor reads IP identifier of the service managers traffic managers, see col.27, lines 46-67, which discusses a fixed affinity or wildcard affinity is referred as being stored on a forward agent, associated actions must be stored with the affinity).**

Regarding claim 38, Albert '045 discloses, further comprising:

(a) in response to receiving the signal (**i.e. wild affinity**), storing a mapping between the flow of packets and the target traffic manager (**see fig.2A-3A, col.30, lines 25-30, which discusses memory 1316 for the purpose of storing packets fragments from which the processor reads IP identifier of the service managers traffic managers, see col.27, lines 46-67, which discusses a fixed affinity or wildcard affinity is referred as being stored on a forward agent, associated actions must be stored with the affinity);**

(b) receiving from the target traffic manager (i**.e. from service manger 300 as traffic manager),** another signal associated with the flow of packets **(i.e. fixed affinity 2 with sync ACK)**, wherein the other signal represents another processing

instruction associated with the flow of packets (**see fig.2A-3B, which shows service manager sends fixed affinity 2 with SYNC ACK to forwarding agent 302**); and

(c) in response to receiving the other signal (**i.e. affinity update message**), deleting the mapping between the flow of packets and the target traffic manager (**see col.27, lines 8-59, which discusses forwarding agent removes/deletes affinity at interval provide by the service manager via an update message with a time to live of zero).**

Regarding claim 39, Albert '045 discloses wherein processing the packet further comprises forwarding the packet to the target traffic manager (**see fig.2A, 3A-3B, and fig.4, which show the use forwarding sync packet to the service manager 300).**

Regarding claim 40, Albert '045 discloses wherein receiving the signal further comprises receiving, from the target traffic manager (**i.e. affinity from service manager as traffic manager to forwarding agent 302),** the signal together with another packet (**see fig.3A-3B, see col.16, lines 7-25, which discusses affinity to be contained source and destination address, source and destination port and more)**.

Regarding claim 41, Albert '045 discloses, wherein receiving the packet further comprises receiving the packet from a client device (**see fig.3A, which shows forwarding agent 302 receives SYN packets from client 304**), and wherein receiving the signal further comprises receiving the signal together with another packet addressed to the client device (**se fig.3B, which shows SYN ACK with fixed affinity to be to the client 304, see col.12, lines 10-65**).

Regarding claim 42, Albert '045 discloses further comprising in response to receiving the signal, sending the processing instruction to a distributor (**see fig.2A, 3A-3B, which shows service manager as traffic manger sends affinity to the forwarding agent as distributor).**

Regarding claim 47, Albert '045 discloses an apparatus for routing a plurality of packet flows over a network (**see fig.2A**) comprising:

(a) a transceiver (**see fig.2A-2B, which shows forward agent 250 with network interface as transceiver**) arranged to receive and forward each packet in the plurality of packet flows (**se col.9, lines 15-60, which discusses forward agent 250 that includes interface 258 that allows packets to be sent and received & see col.7, lines 18-19, which discusses flow as set of packets sent between two end stations**);

(b)an interface, coupled to the transceiver (**see fig.2B-2C**), and arranged to perform actions (**see fig.3A, Which shows 302 to perform action by receiving SYN ,see col.12, lines 30-40 & see col.19, lines 65-67)**, including:

(i)receiving an instruction (**see fig.2A-4, (col.8, lines 10-67, which discusses service managers uses wildcard affinities to specify flows for which they may be provides service and forward agents transfers packets to the appropriate service managers**);

(ii)if the instruction is a memorize instruction (**i.e. memory 1316 to stored instructions**), storing a mapping between a designated packet flow in the plurality of packet flows and a target network device (**see fig.2A-3A, col.30, lines 25-30, which discusses memory 1316 for the purpose of storing packets fragments from which the processor reads IP identifier of the service managers traffic managers, see col.27, lines 46-67, which discusses a fixed affinity or wildcard affinity is referred as being stored on a forward agent, associated actions must be stored with the affinity)**; and

(iii) if the instruction is a delete instruction (**i.e. affinity message with a time to live of zero)**, deleting the mapping between the designated packet flow in the plurality of packet flows and the target network device (**see col.27, lines 8-59, which discusses forwarding agent removes/deletes affinity at interval provide**

by the service manager via an update message with a time to live of zero & see fig.2A-4); and

Performing load-balancing (**i.e. in the case of load balancing**), including making a determination as to which traffic manager of the plurality of managers (**see fig.2, 4, which shows plurality of service manager as traffic managers**) to forward packets to based on a load across of traffic managers (**see col.3, lines 19-21, see col.8, lines 45-58, which discusses service managers/traffic managers send wildcard affinities, which specify destination addresses of server clusters that corresponding to virtual IP addresses that are to be load balanced by the service manager, to forwarding agents. Thus, the forwarding agents as the distributor forward new packets send to those virtual IP address to the appropriate service manager as traffic manger, see col.11, lines 36-53, see col.28, lines 26-55, which discusses forward agent as distributor determines a service manager as traffic to handle a packet).**

Regarding claim 48, Albert '045 discloses wherein the interface is arranged to perform further actions, including, if the instruction is a mirror instruction **(i.e. forwarding agent to check affinity received from service manager as traffic manager to determine the processing 1414, 1416)**, mirroring the mapping between the designated packet flow and the target network device **(see fig.2A-4,**

see fig.14, which discusses, which shows if determine remote 1416, copy forwarding agent IP to the remote service manager 1422, 1424).

Regarding claim 52, Albert '045 discloses a method for routing a first flow of packets and a second flow of packets that is related to the first flow of packets (**see fig.2A**), over a network comprising:

(a) at a first distributor, associating the first flow of packets with a traffic manager (**see col.6, lines 37-67, which discusses some traffic from network 210 passes through a forwarding agent 231 that communicates to service manager 241 and 242)**;

(b) at a first distributor ,associating the second flow of packets with the traffic manager (**see col.6, lines 37-67, which discusses some traffic from network 210 passes through a forwarding agent 232 that communicates to service manager 241 and 242)**;

and

(c)in response to detecting a signal in the first flow of packets **(see col.26, lines 35-67, which discusses service managers can send forwarding agents instruction detailing certain sets of packets that the service manager want to be either forwarded or interested and the forwarding agent that intercepts packets that matches the affinity to be forwarded to the service manager &**

see col.8, lines 4-65), aging the association between the second flow of packets and the traffic manager (**see fig.5,which shows service manager 504 to receive flow from both forwarding agents and provides fixed affinity to each forwarding agent to handle packets for a given flow and see col.14, lines 1-67 & see col.15, lines 1-67,which discusses flow sent from 500 to 502 but instead 512 based on instruction received from 504 forward the flow back to the client 500, thus aging);** and

Performing load-balancing (**i.e. in the case of load balancing**), including making a determination as to which traffic manager of the plurality of managers (**see fig.2, 4, which shows plurality of service manager as traffic managers**) to forward packets to based on a load across of traffic managers (**see col.3, lines 19-21, see col.8, lines 45-58, which discusses service managers/traffic managers send wildcard affinities, which specify destination addresses of server clusters that corresponding to virtual IP addresses that are to be load balanced by the service manager, to forwarding agents. Thus, the forwarding agents as the distributor forward new packets send to those virtual IP address to the appropriate service manager as traffic manger, see col.11, lines 36-53, see col.28, lines 26-55, which discusses forward agent as distributor determines a service manager as traffic to handle a packet).**

Regarding claim 53, Albert '045 discloses wherein the signal further comprises a TCP protocol signal (**see col.7, lines 20-25, which discusses TCP**).

Regarding claim 54, Albert '045 discloses wherein the signal further comprises a TCP FIN (**see col.25, lines 25-51, which discusses TCP FIN**).

Regarding claim 55, Albert '045 discloses further comprising:

(a)storing (**see fig.2A-3A, col.30, lines 25-30, which discusses memory 1316 for the purpose of storing packets fragments from which the processor reads IP identifier of the service managers traffic managers)** a sequence number **(see col.26, lines 35-67, which discusses service managers can send forwarding agents instruction detailing certain sets of packets that the service manager want to be either forwarded or interested and the forwarding agent that intercepts packets that matches the affinity to be forwarded to the service manager & see col.8, lines 4-65)** corresponding to the first flow of packets (**see fig.2A, col.27, lines 46-67, which discusses a fixed affinity or wildcard affinity is referred as being stored on a forward agent, associated actions must be stored with the affinity & see col.24, lines 28-50, which discusses a sequence number)**; and

(b) employing the sequence number to determine whether the signal is a valid FIN signal (**see col.24, lines 28-50, which discusses forwarding agent**

to use the sequence number to perform action as such fin signal discusses in col.25, lines 13-40).

Regarding claim 56, Albert '045 discloses further comprising, in response to detecting the signal (i.e**. forwarding agent 512 received SYN ACK from host 506**), in a first distributor (**i.e. forwarding agent 512 as the first distributor**), sending a second signal to a second distributor (**i.e. fixed affinity 1 is sent to forwarding 502 by service manager 504),** wherein the second signal instructs the second distributor to age the second flow of packets (**see fig.5,which shows forwarding agent 512 to send the SYN ACK to 500 based on fixed affinity 2 received in response to the first affinity from service manager 504, col.14, lines 1-67 & see col.15, lines 1-67)**.

Regarding claim 57, Albert '045 discloses wherein the processor is arranged to perform further action, including:

receiving, from the traffic manager **(i.e. service manager as traffic manager)** to the distributor (**see fig.2, 4, which shows the use of transmitting/receiving from the service to forwarding agent as distributor)**, a first partial server-side connection key corresponding to another flow of packets(**i.e. second packet as flow that includes only source and destination IP address but not ports)**, wherein the first partial server-side connection key

includes known fields and unknown fields (**see fig.11, which shows which shows 1102 and 1104, see col.28, lines 25-67, which discusses source and destination IP address as known fields and ports as unknown fields**);

learning, at the distributor (i.e. **forwarding agent as distributor)**, of a second partial server-side connection key which includes fields corresponding to unknown fields (**i.e. first packet as flow that includes source, destination IP address, and ports, which are unknown field to the second packet)** of the first partial server-side connection key(**see fig.11, which shows which shows 1102 and 1104, see col.28, lines 25-67, which discusses forwarding agents look for wildcard affinities that correspond to packets fragments, where wildcard affinities for packet fragment may specify only source and destination IP address and not source and destination ports or to specify all**); and

storing, at the distributor (**i.e. at forwarding agent**), an association (**col.30, lines 25-30, which discusses memory 1316 for the purpose of storing packets fragments from which the processor reads IP identifier of the service managers traffic managers, see col.26, lines 14-67, see col.15, lines 45-67, see col.27, lines 46-67, which discusses a fixed affinity or wildcard affinity is referred as being stored on a forward agent, associated actions must be stored with the affinity)** between the second partial server-side connection key (**i.e.**

second packet as flow that includes only source and destination IP address but not ports) and the traffic manager **(i.e. service manager as traffic manager)** associated with the flow of packets for use in forwarding packets of said another flow of packets(**see fig.11, see col,28, lines 26-67 & see col.29-1-30, fig.1, fig.4).**

Regarding claim 58, Albert '045 discloses wherein the processor is arranged to learn of the second partial server-side connection key by receiving packets containing the unknown fields (**i.e. first packet as flow that includes source, destination IP address, and ports, which are unknown field to the second packet)** of the first partial server-side connection key (**i.e. second packet as flow that includes only source and destination IP address but not ports)**, and generating the second partial server-side connection key from the packets containing the unknown fields (**see fig.11, which shows which shows 1102 and 1104, see col.28, lines 25-67, which discusses forwarding agents look for wildcard affinities that correspond to packets fragments, where wildcard affinities for packet fragment may specify/generate only source and destination IP address and not source and destination ports or to specify all**).

Regarding claim 59, Albert '045 discloses wherein the processor is arranged to learn of the second partial server-side connection key by receiving packets from said another flow of packets (**i.e. first packet as flow that includes source,**

destination IP address, and ports, which are unknown field to the second packet) and receiving the second partial server-side connection key from the traffic manager associated with the flow of packets(**see fig.11, which shows which shows 1102 and 1104, see col.28, lines 25-67, which discusses forwarding agents look for wildcard affinities that correspond to packets fragments, where wildcard affinities for packet fragment may specify only source and destination IP address and not source and destination ports or to specify all, see col.29-1-30, fig.1, fig.4).**

Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the

advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to VINNCELAS LOUIS whose telephone number is (571)270-5138. The examiner can normally be reached on M-F from 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, AUNG S. MOE can be reached on (571)272-7314. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Aung S. Moe/
Supervisory Patent Examiner, Art Unit 2416

/V. L./
Examiner, Art Unit 2416
Thursday, May 14, 2009